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Random gap detection threshold: a useful measure of auditory aging?

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OBJECTIVE:
Temporal processing deficits are believed to contribute to older adults difficulties in understanding speech in background noise. Recent consensus studies have advocated the use of at least one measurement of temporal processing in the diagnosis of auditory processing disorders. However, there has been little or no evidence to support the use of such testing particularly among older adults. This is further compounded by the lack of age related normative data for the click gap detection subtest. We present our recent findings from a commercially available Random Gap Detection Test (RGDT).

DESIGN:
The RGDT recording consists of six subtests using tones (500, 1000, 2000, and 4000 Hz, with 7 ms duration) and click pairs presented randomly with inter-stimulus intervals of 0 to 40 ms. The RGDT was administered to 29 normal hearing adults. Subjects were divided into two groups: younger group (aged 20-30 years; 2 males, n=11) and an older group (aged 50-65 years; 9 males, n=18).

RESULTS:
Results showed mean gap detection thresholds of 14.6 ms for 500 Hz, 11.8 ms for 1000 Hz, 10.8 ms for 2000 Hz, 8.4 ms for 4000 Hz and 10.3 ms for the click stimuli. We could find no evidence to suggest a significant relationship between the two groups for tonal stimuli (1000, 2000, 4000 Hz) or paired click stimuli (Kruskal-Wallis chi-squared test, df= 1, $p > 0.05$). However there was a significant difference between the two groups for tonal stimuli presented at 500 Hz (Kruskal-Wallis chi-squared test, df= 1, $p < 0.05$).

CONCLUSIONS:
To our knowledge, this is the first study of normative data for the click gap detection subtest in an older population. We present our normative data for future comparison with other studies. We discuss these findings and the clinical usefulness of RGDT as a measure of temporal resolution in an older population.